#13 Appeal AF

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TRANSMITTAL OF APPEAL BRIEF (Large Entity)

Brief 2/24/04

Docket No. 02890033AA

In Re Application Of: **Moody et al.**

Serial No.	Filing Date	Examiner	Group Art Unit
09/692,538	10/20/2000	N. Nguyen	2635

Invention: **ASSET TRACKING USING WIRELESS LAN INFRASTRUCTURE**

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Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed on DECEMBER 12, 2003

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re patent application of
John O. Moody et al. Appeal No.:
Serial No.: 09/692,538 Group Art Unit: 2635
Filed: October 20, 2000 Examiner: N. Nguyen
For: ASSET TRACKING USING WIRELESS LAN INFRASTRUCTURE

Commissioner for Patents
United States Patent and Trademark Office
P. O. Box 1450
Alexandria, Virginia 22313-1450

BRIEF OF APPELLANTS UNDER 37 C.F.R. 1.192(c)

Sir:

Applicants have filed a timely Notice of Appeal from the action of the Primary Examiner on August 13, 2003, in finally rejecting claims 1 - 15 in this application. Attached is a check in the amount of $330.00 (37 C.F.R. 1.17(f)) to cover the fee for filing this appeal brief.

REAL PARTY IN INTEREST

The real party in interest in this appeal is Lockheed Martin Corporation of Bethesda, Maryland, assignee of the entire interest on the above-identified application.

RELATED APPEALS AND INTERFERENCES

The appellants, their legal representative and the assignee is presently unaware of any appeal or interference which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

STATUS OF THE CLAIMS

Claims 1 - 15 have been finally rejected under 35 U.S.C. §103. Specifically, claims 1 - 2, 6 - 10 and 13 - 15 have been rejected under 35 U.S.C. §103 as being unpatentable over Bolavage et al. in view of Heiman et al.; claims 3 - 5 have been rejected under 35 U.S.C. §103 as being unpatentable over Bolavage et al. in view of Heiman et al. and Welles, II, et al.; claim 11 has been rejected under 35 U.S.C. §103 as being unpatentable over Bolavage et al. in view of Heiman et al. and Raleigh et al.; and claim 12 has been rejected under 35 U.S.C. §103 as being unpatentable over Bolavage et al. in view of Heiman et al. and Gamlyn et al.

STATUS OF AMENDMENTS

The amendment filed June 5, 2003, has been entered. No other amendments to this application have been presented.

SUMMARY OF THE INVENTION

The present invention is directed to the provision of potentially enhanced radio frequency identification (RFID) system functions through a standard wireless data network through wireless access points thereof which avoids numerous limitations and problems of known RFID systems such as their closed nature (e.g. extensible only with substantial difficulty), limited area coverage (e.g. geographical extent and communication range), limited data handling and reporting capability, radio communication interference and reliance on proprietary, dedicated hardware (page 2, lines 10 - 25, and page 3, lines 3 - 14) by leveraging existing capabilities of wireless network links which possess the capability of tracking communications through wireless communication

access points (page 3, line 26 to page 3, line 2). The manner in which the capabilities of wireless network communications are leveraged is generally discussed, *inter alia*, at page 9, lines 27 - 37, page 10, lines 19 - 29, page 12, lines 9 - 21 and page 13, lines 25 - 36. Virtually no modification of the standard (e.g. the IEEE 802.11 standard - page 3, line 33) wireless network but may be implemented principally by using transponders with which the access points can directly and bidirectionally communicate (as illustrated at 40, 50, 60 and 70 of Figure 1) and the use of some geographical information system software (120 of Figure 2) for providing reports, in a desired format, of the tracking information normally maintained by the standard wireless network (page 11, lines 10 - 30, and page 12, lines 9 - 28). The computational power already present and available in the network can be advantageously exploited to support fine-grained tracking algorithms such as triangulation, quadratic optimization or neural networks and which may be refined through a site survey (page 8, line 21 to page 9, line 4).

Queries from the network server to the access points are used to obtain information regarding associations of transponders/tranceivers (e.g. 50) and particular access points 40 which is placed in a general data store 100 and may include communication data 130 and condition data 140. Particular identification information is preferably provided by a look-up table in order to allow transponder and associated asset identification with communications which can be potentially very rudimentary such as merely a particular frequency such as can be provided by a passive transponder such as is illustrated in Figure 3. More detailed information can be provided by active transponders such as a "smart card" type of transponder

illustrated in Figure 4 and discussed from page 13, line 37 to page 15, line 13, and real-time condition reporting and remote control can be provided using a transponder constituted as illustrated in Figure 5 and discussed on page 15, line 14 to page 16, line 15.

ISSUES

A: Is the subject matter of claims 1 - 2, 6 - 10 and 13 - 15 obvious over Bolavage et al. in view of Heiman et al.?

B: Is the subject matter of claims 3 - 5 obvious over Bolavage et al. in view of Heiman et al. and Welles, II, et al.?

C: Is the subject matter of claim 11 obvious over Bolavage et al. in view of Heiman et al. and Raleigh et al.?

D: Is the subject matter of claim 12 obvious over Bolavage et al. in view of Heiman et al. and Gamlyn et al.?

However, since the basic combination of Bolavage et al. and Heiman et al. is common to each of the grounds of rejection of record, a basic and, it is believed, controlling issue is whether or not the Examiner is correct in asserting that there is "no different (sic) between the smart interrogator of wireless automated data network of Bolavage et al. from an 'asscess (sic) point' of the network, as recited in the claims" (Advisory action comments, lines 7 - 9) or "a smart interrogator 22 is an access point of a wireless data network" (final rejection, page 4, lines 7 - 8), particularly since the Examiner admits that "Bolavage et al. did not explicitly disclose that (sic) a transponder detectable by said wireless access points of said computer network" (final rejection, page 5, lines 11 -12).

GROUPING OF CLAIMS

The rejected claims do not stand or fall together. The reasons why appellants consider the rejected claims to be separately patentable are set out in the following section, entitled "ARGUMENT".

ARGUMENT

The Prior Art

Bolavage et al. - 6,509,828

Bolavage teaches a system in which an RFID system is interface to a wired computer network and which includes a "smart interrogator" 22. A widely distributed plurality of smart interrogators which may be fixed or mobile can be provided and, if mobile, a global positioning system (GPS) chip may be included. The smart interrogator(s) communicates on a plurality of frequencies in order to communicate with transponder tags 30, 32, 34, which may originate with different manufacturers and which may operate on different frequencies. The smart interrogators are queried in accordance with a URL address identifier to provide information to update a source data base and registered client databases. The only wireless communication links seen in Bolavage et al. are the satellite communications (e.g. GPS) and between the smart interrogator 22 and the tags 30, 32, 34. A transferable agent can be spawned by the logistics server to locate a particular asset.

Heiman et al. - 6,587,034

Heiman et al. teaches a network system having a plurality of access points 18A - 18C having wireless links to a variety of data acquisition devices 14, 16, 22, 24 26 and 28 such as a computer terminal, point of sal terminal, bar code reader, paging unit, message unit

and/or voice unit described at column 4, lines 15 - 44, which provide additional functionality in the overall network in accordance with the types of data they respectively capture, particularly in regard to paging and voice communications over the digital data network without interruption of the normal data communication functions of the network.

Welles, II, et al. - 5,691,980

Welles, II, et al. is directed to a mobile local area network for tracking assets which are in close physical proximity using minimal power and bandwidth by providing for dynamic reconfiguration of the network as assets join or leave the network. One of the cooperative assets is designated as a "master" while other assets in the network are "slaved" to it such that all assets are tracked relative to the master asset within the known geographical extent of the network.

Raleigh et al. - 6,101,399

Raleigh et al. is directed to a technique of forming an adaptive phased array transmission beam pattern without prior knowledge of array geometry or mobile feedback. The receive channel statistics are estimated and the optimum transmit beam pattern is found by solving a quadratic optimization.

Gamlyn et al. - 5,749,367

Gamlyn is directed to a heart monitoring apparatus which uses a neural network to generate an n-dimensional vector which is compared with a reference vector to control generation of an alarm or storage of ECG data. A wireless communication link is provided from the monitoring apparatus to a central station.

The Claimed Invention

The invention, as claimed, is a transducer capable of communicating with an access point of a digital communication network (claims 1 - 5 and 15) and an asset tracking system (claims 6 - 14) including a transponder, a digital communication network and means for reporting internal network access point information in association with identification information provided from the transponder to the access point. In both sets of claims, the access points are explicitly defined as being part of a "*standard digital network*" (claim 1, emphasis added) or that the computer network supports "a plurality of wireless links from respective *wireless access points of said computer network*" (claim 6, emphasis added). Therefore, the claims specifically and explicitly refer to the wireless access points as being a part of the digital communications network.

The transponder is defined in claim 1 as having "means for associating said transponder with respective wireless access points *of a standard data network...* and means for transmitting *a signal that can be received by an access point of said standard data network* and interpreted by an access point of said standard data network as identification information" (emphasis added). Claim 2 further recites that the signals transmitted from the transponder represent data stored in memory in the transponder. Claim 3 recites condition sensing in the transponder. Claim 4 recites control of transmission from the transponder based on change of condition. Claim 5 recites remote control of a device associated with the transponder. Claim 15 recites that the transponder receives an interrogation signal from a network access point.

System claim 6 recites "computer network supporting

a plurality of wireless links from respective wireless access points of said computer network, a transponder *detectable by said wireless access points of said computer network*, said transponder including means for transmitting identification information corresponding to said transponder, and means for accessing and reporting *internal network access point information in association with said identification information*" (emphasis added). Claims 7 and 13 recite association of access point information with geographical information. Claims 8 and 14 recite reporting the information of claim 7. Claim 9 recites determination of proximity of the transponder and access points. Claims 10 - 12 recite particular techniques of determining proximity recited in claim 9.

The Examiner's Application of the Prior Art

The Examiner's position in applying the prior art relied upon is inconsistent, particularly in regard to asserting that the smart interrogator 22 of Bolavage et al. is the same as or at least not different from an access point while admitting that Bolavage et al. does not disclose a transponder detectable by an access point of a computer network and relying on Heiman et al. for showing such access points. This inconsistency is particularly clear in regard to claim 15; in regard to which the Examiner again asserts that the transponders of Bolavage et al. can receive an interrogation signal from an access point.

In regard to claim 2, the Examiner asserts that Bolavage et al. teaches a memory and transmits a signal representing data therein and refers to column 1, line 61, to column 2, line 3, of Bolavage et al. In regard to claims 6 - 8, 13 and 14 the Examiner asserts association of access point information with geographical

information; relying on column 5, lines 41 - 42 and column 6, line 66, to column 7, line 11, of Bolavage et al.. In regard to claim 9, the Examiner relies on column 5, lines 14 - 42, and Figure 1 of Bolavage et al. for teaching proximity sensing through triangulation. The Examiner adds Raleigh et al. to the combination of Bolavage et al. and Heiman et al. for teaching quadratic optimization recited in claim 11 and adds Gamlyn et al. for teaching a neural network. In regard to claims 3 - 5 the Examiner relies of Welles, II, et al. for condition sensing and control of transmission in response to change of condition.

The Differences Between the Prior Art and the Claimed Invention

While Bolavage et al. may provide some of the asset tracking and reports provided by the present invention, the explicit recitations in the claims that the access are a part of the digital communication network, as alluded to above, is a major conceptual difference between the invention, which leverages an otherwise existing network or a network which is otherwise economically justified, to communicate with transponders which are arranged to receive interrogation signals from and transmit signals to a wireless access point of the digital communication network and leaving the network substantially unmodified by virtue of the particular transponders used, and Bolavage et al. which must provide an additional smart interrogator for the network *which has no other function in the network* than to communicate with transponders which may communicate with the smart interrogator on any of a number of frequencies which are, at least initially, unknown to the smart interrogator. Thus, it is seen that the smart interrogator of Bolavage

et al. does not possess any of the characteristics which would be associated with direct communication of a standard wireless access point of a network which support the meritorious function of the invention to provide both enhanced network function while overcoming limitations of RFID systems and, in fact, represents a *hardware modification* of the network avoided by the invention and which prevents the smart interrogator from answering the explicit recitations of the claims.

The Examiner is thus correct in the admission that Bolavage et al. does not teach a transponder detectable by a wireless access point of a digital network. However, the Examiner's reliance on Heiman et al. to supply such a teaching is not well-placed since Heiman et al. does not teach a *transponder* detectable by an access point but only data collection or input devices operating in much the same manner as a terminal or computer which communicate with the network through wireless access points of a network. The statement of the rejection in the final action of August 13, 2003, glosses over this distinction and the corresponding response thereto is not commented upon in the Advisory Action.

That is, while it may, *arguendo*, be within the level of ordinary skill in the art in view of Bolavage et al. and Heiman et al. to substitute the smart interrogator(s) of Bolavage et al. for one or more of the input devices 14, 16, 22, 24, 26 and/or 28 of Heiman et al., such an arrangement does not answer the explicit recitations of the claims since the smart interrogator would be interposed between the transponder and an access point and the cooperation of the transponder and an access point recited in the claims would be neither taught nor suggested and the level of ordinary skill in the art determinable from these references would not support a

conclusion of obviousness. Simply put, there is no recognition in the references applied that a digital communication network including wireless access points (a recognized term of art) could be leveraged to provide RFID functions while overcoming limitations of known RFID systems and enhancing network functionality with virtually no network modification whereas the inclusion of a smart interrogator such as that of Bolavage et al. is an *additional element* which must be added to the network as well as constituting a hardware modification of the network. Furthermore, the collection of data by the smart interrogator and transfer of that data to the network and various locations therein must be separately managed rather than the simple expedient of collecting the access point information normally maintained by the network and associating geographical information with it while allowing the access point data, including communication data 130 to be used for developing geographical data which is fine-grained and of improved resolution since transponder detection and/or communication may be provided through plural access points. Therefore, it can be seen that the basic combination of Bolavage et al. and Heiman et al. falls far short of supporting the conclusion of obviousness asserted in the final rejection in regard to any claim in the application.

In this regard, it is also respectfully submitted that the passage bridging columns 1 and 2 of Bolavage et al. relied upon by the Examiner in regard to claim 2, while mentioning a memory in a transponder, does not teach or suggest transmission of that information to an access point, as recited. Similarly, in regard to claims 6 - 8, 13 and 14, the passages of column 5 and bridging columns 6 and 7 relied upon by the Examiner refer to the

GPS provided for a mobile smart interrogator and to a cursor control device for a display, respectively, and not to association of geographical data with a particular detected transponder, as recited. Likewise, in regard to claim 9, the passage relied upon merely mentions an approximately three hundred foot range (line 27) to thus provide an equally approximate transponder location but does not mention determination of proximity of the transponder to the smart interrogator, much less to a wireless access point. Further, while a GPS system may operate by triangulation or other algorithms, as applied by Bolavage et al. to a mobile smart interrogator, has nothing to do with determining proximity between a transponder and smart interrogator (or access point) by that or any other technique. In regard to claim 15, the passages of Heiman et al. relied upon by the Examiner have nothing to do with interrogation of transponders but only with the interrogation of access points to determine the current access point for a given data entry device which may be movable, such as a pager carried by a person who can move through a facility.

In regard to claims 3 - 5 to which the Examiner adds Welles, II, et al. to the basic combination of Bolavage et al and Heiman et al., it is respectfully submitted that, while Welles, II, et al. teaches use of condition sensors in combination with a *transceiver*, it does not teach inclusion of such sensors in a *transponder* of the type of Bolavage et al. Welles, II, et al. certainly does not teach or suggest the control of the transponder function recited in claim 4 or remote control of a device as recited in claim 5. Moreover, the nature of the network of Welles, II, et al. is very different in constitution, arrangement and function from that of either Bolavage et al. or Heiman et al. since each

transceiver in Welles, II, et al. is capable of communicating with a central station but also is capable of forming a network with other transceivers proximate to it to conserve bandwidth and power through a combined communication and thus would not lead to an expectation of success in reporting sensed condition control of transponder function or provision of remote control in response to an interrogation signal or signal associated with an interrogation signal, as claimed, in the environment of Bolavage et al. and Heiman et al. (although Bolavage et al. includes mention of storing instructions for execution by the device in the paragraph bridging columns 1 and 2). Most importantly, however, Welles, II, et al. does not mitigate the deficiency of the teachings, suggestions or evidence of a level of ordinary skill in the art of the basic combination of Bolavage et al. and Heiman et al. and the Examiner has not asserted that it does.

Similarly, in regard to claims 11 and 12, While Raleigh et al. and Gamlyn et al. mention quadratic optimization and a neural network, respectively, they are mentioned in the context of much different purposes and much different environments than those of determining proximity of network wireless access points and transponders which communicate with each other and are thus essentially non-analogous and not properly combinable with Bolavage et al. and Heiman et al. and, in any event, do not enable the meritorious function of the invention supported thereby and do not lead to an expectation of success in doing so.

In view of the foregoing, it is readily seen that the prior art relied upon, taken singly or in any combination, does not answer the recitations of the claims and that the Examiner has not, in fact, made and

cannot make a *prima facie* demonstration of obviousness of any claim in the application. The claims explicitly reflect a profound conceptual difference between the approaches to asset tracking of the invention (which performs RFID functions by providing transducers which can be detected by wireless access points of a digital communication network) and Bolavage et al. (which requires a hardware modification of the network in the form of an added smart interrogator having no other function in the network) as has been admitted by the Examiner but which is not remedied by the additional reliance on Heiman et al. or any other reference of record. Even if the term "access point" is not accorded the status of a recognized term of art, as it is believed to be, the smart interrogator of Bolavage et al. is not and cannot properly be regarded to be a wireless access point of a "*standard* data network" as recited in claim 1 for the simple reason that Bolavage et al. teaches the *addition* of such an element to a network to allow asset tracking (and would correspond to the input devices of Heiman et al. and thus would be interposed between the transponders and access points contrary to the claim recitations if Bolavage et al. is modified in the manner of Heiman et al.). Similarly, an access point as recited in claim 6 is not and cannot properly be regarded to be answered by the smart interrogator of Bolavage et al. for the simple reason that the smart interrogator of Bolavage et al. is accessed from the network with a URL address (column 5, line 54) and thus is not handled and internal wireless access point information maintained for it as additionally recited in claim 6, as well as the recitations of claim 6 discussed above. These clear and explicitly recited distinctions from the teachings of the references relied upon cannot be glossed over or properly

dismissed by asserting that the claim language is being given its broadest reasonable interpretation. Failing to show, by pointing out specific teachings or suggestions in the applied references or by a clear and convincing line of reasoning from such teachings or suggestions (see Ex parte Clapp, 227 USPQ 972 (Bd. of App., 1985), how the references relied upon answer *each and every* recitation of the claims is, as pointed out in the response to the final rejection, not interpretation at all, much less a reasonable interpretation. The Examiner has not made a proper analysis of the prior art under Graham v. John Deere, 148 USPQ 459 (1966) by determining the scope and content of the prior art, ascertaining the level of ordinary skill in the relevant art and determining obviousness against a background so developed, but, rather, has glossed over explicit claim recitations and conceptual differences reflected therein by simply asserting, through hindsight and in the absence of any particularly relevant teaching in the references, that the term "access point" is sufficiently broad to be met by whatever it might be that the references might contain, notwithstanding an admission of the difference on the record and the clear failure of any secondary reference to mitigate that deficiency while any proper combination would continue to fail to answer the claim recitations. Recitations of the dependent claims have also been similarly glossed over or the language of the references interpreted erroneously through hindsight, as discussed above. Therefore, it is respectfully submitted that A:) claims 1 - 2, 6 - 10 and 13 - 15 are not obvious over Bolavage et al. in view of Heiman et al.; B:) claims 3 - 5 are not obvious over Bolavage et al. in view of Heiman et al. and Welles, II, et al.; C:) claim 11 is not obvious over Bolavage et al. in view of Heiman et al. and

Raleigh et al.; and D:) claim 12 is not obvious over Bolavage et al. in view of Heiman et al. and Gamlyn et al.

CONCLUSION

In view of the foregoing, it is respectfully submitted that all grounds of rejection asserted in the final action of August 13, 2003, are clearly in error and no *prima facie* demonstration of the propriety of any of the asserted grounds of rejection has been made. Accordingly, it is respectfully submitted that none of the asserted grounds of rejection are tenable and reversal of the Examiner in regard thereto is respectfully requested.

Respectfully submitted,

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APPENDIX

THE CLAIMS ON APPEAL

The claims on appeal are as follows:

1. (Previously Presented) A transponder including

means for associating said transponder with a device,

means for associating said transponder with respective wireless access points of a standard data network,

means for receiving an interrogation signal, and

means for transmitting a signal that can be received by an access point of said standard data network and interpreted by an access point of said standard data network as identification information.

2. (Original) A transponder as recited in claim 1, further including a memory and wherein said means for transmitting a signal includes means for transmitting signals representing data stored in said memory.

3. (Original) A transponder as recited in claim 2, further including

means for sensing a condition of said device.

4. (Original) A transponder as recited in claim 3, further including

means responsive to a detected change of condition for controlling said means for transmitting a signal.

5. (Original) A transponder as recited in claim 2, further including means for controlling said device in response to said interrogation signal or a signal associated with said interrogation signal.

6. (Previously Presented) An asset tracking system including

a computer network supporting a plurality of wireless links from respective wireless access points of said computer network,

a transponder detectable by said wireless access points of said computer network, said transponder including means for transmitting identification information corresponding to said transponder, and

means for accessing and reporting internal network access point information in association with said identification information.

7. (Original) A system as recited in claim 6, further including

means for associating internal network access point information with geographical locations.

8. (Original) A system as recited in claim 7, further including

means for reporting identification information associated with geographical locations to a user of said computer network.

9. (Original) A system as recited in claim 6, further including

means for determining proximity of said transponder to an access point

10. (Original) A system as recited in claim 9, wherein said means for determining proximity includes triangulation means.

11. (Original) A system as recited in claim 9, wherein said means for determining proximity includes quadratic optimization means.

12. (Original) A system as recited in claim 9, wherein said means for determining proximity includes a neural network.

13. (Original) A system as recited in claim 9, further including

means for associating internal network access point information with geographical locations.

14. (Original) A system as recited in claim 13, further including

means for reporting identification information associated with geographical locations to a user of said computer network.

15. (Previously Presented by Amendment) A transponder as recited in claim 1, wherein said means for receiving an interrogation signal includes means for receiving an interrogation signal from an access point of said standard wireless data network.